

MPYCXL - Multiply Complex Long

Encoding

31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Group				S/P		Unit		MAUopcode				Rte		0		Rx				Ry				CE3		ME					

Fig. 2A

Syntax/Operation

Instruction	Operands	Operation	ACF
Dual Halfwords			
MPYCXL.[SP]M.2SH	Rte, Rx, Ry	Do operation below but do not affect ACFs	None
MPYCXL.[NVZ].[SP]M.2SH	Rte, Rx, Ry	$Rto \leftarrow (Rx.H1 * Ry.H1 - Rx.H0 * Ry.H0)$ $Rte \leftarrow (Rx.H1 * Ry.H0 + Rx.H0 * Ry.H1)$	F1 F0
[TF].MPYCXL.[SP]M.2SH	Rte, Rx, Ry	Do operation only if T/F condition is satisfied in ACFs	None

Arithmetic Scalar Flags Affected (on the least significant operand (Rte))

C = No effect

N = MSB of result

V = 1 if an integer overflow occurs on either result, 0 otherwise

Z = 1 if a zero result is generated, 0 otherwise

Cycles: 2

Fig. 2B

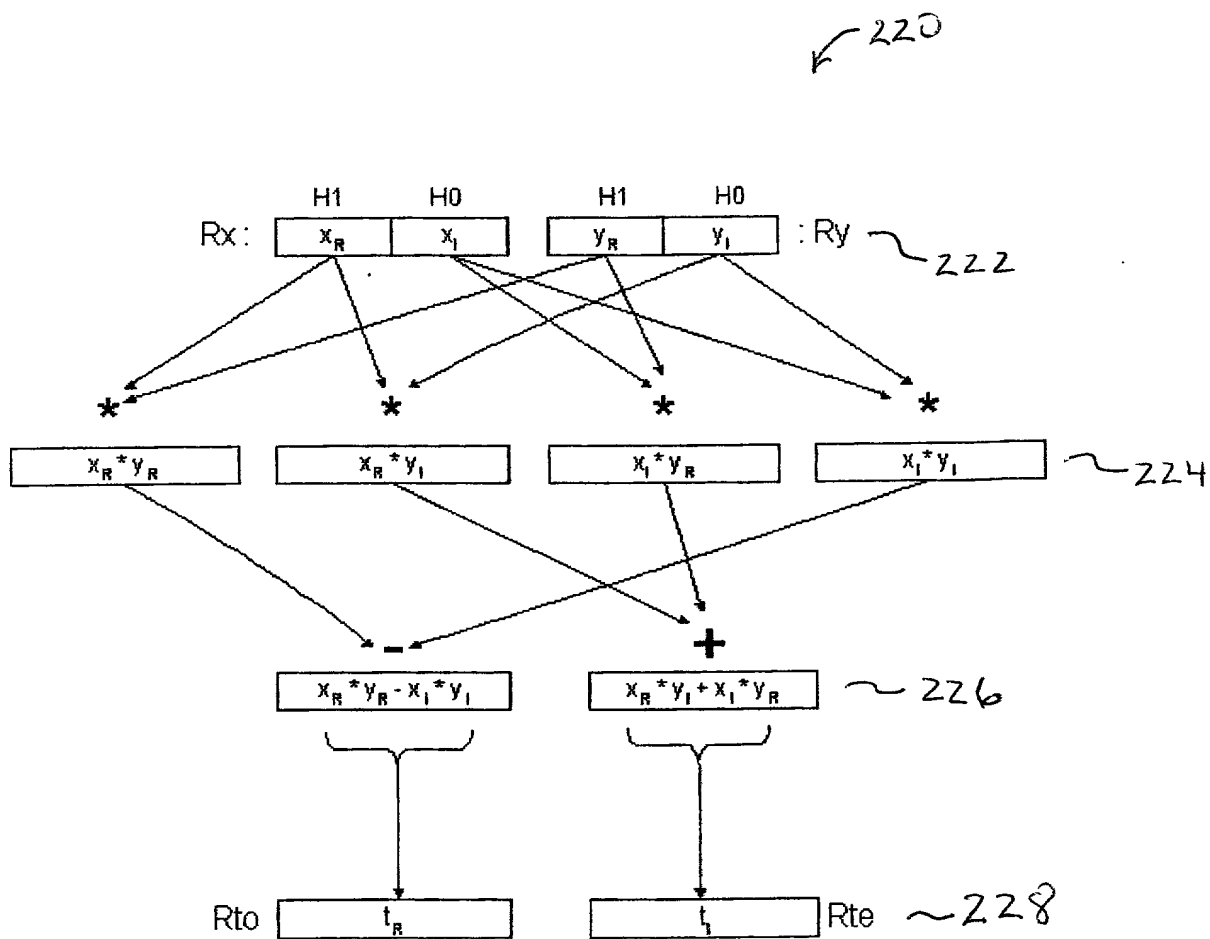


Fig. 2C

MPYCXJL - Multiply Complex Conjugate Long

Encoding

31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Group	S/P	Unit	MAU	Opcode							Rte	0			Rx							Ry	CE3	ME							

Fig. 3A

Syntax/Operation

Instruction	Operands	Operation	ACF
Dual Halfwords			
MPYCXJL.[SP]M.2SH	Rte, Rx, Ry	Do operation below but do not affect ACFs	None
MPYCXJL.[NVZ].[SP]M.2SH	Rte, Rx, Ry	$Rto \leftarrow (Rx.H1 * Ry.H1 + Rx.H0 * Ry.H0)$ $Rte \leftarrow (Rx.H0 * Ry.H1 - Rx.H1 * Ry.H0)$	F1 F0
[TF].MPYCXJL.[SP]M.2SH	Rte, Rx, Ry	Do operation only if T/F condition is satisfied in ACFs	None

Arithmetic Scalar Flags Affected (on least significant operation (Rte) or as specified)

C *Not affected*

N = MSB of result

V = 1 if an integer overflow occurs on either result, 0 otherwise

Z = 1 if a zero result is generated, 0 otherwise

Cycles: 2

Fig. 3B

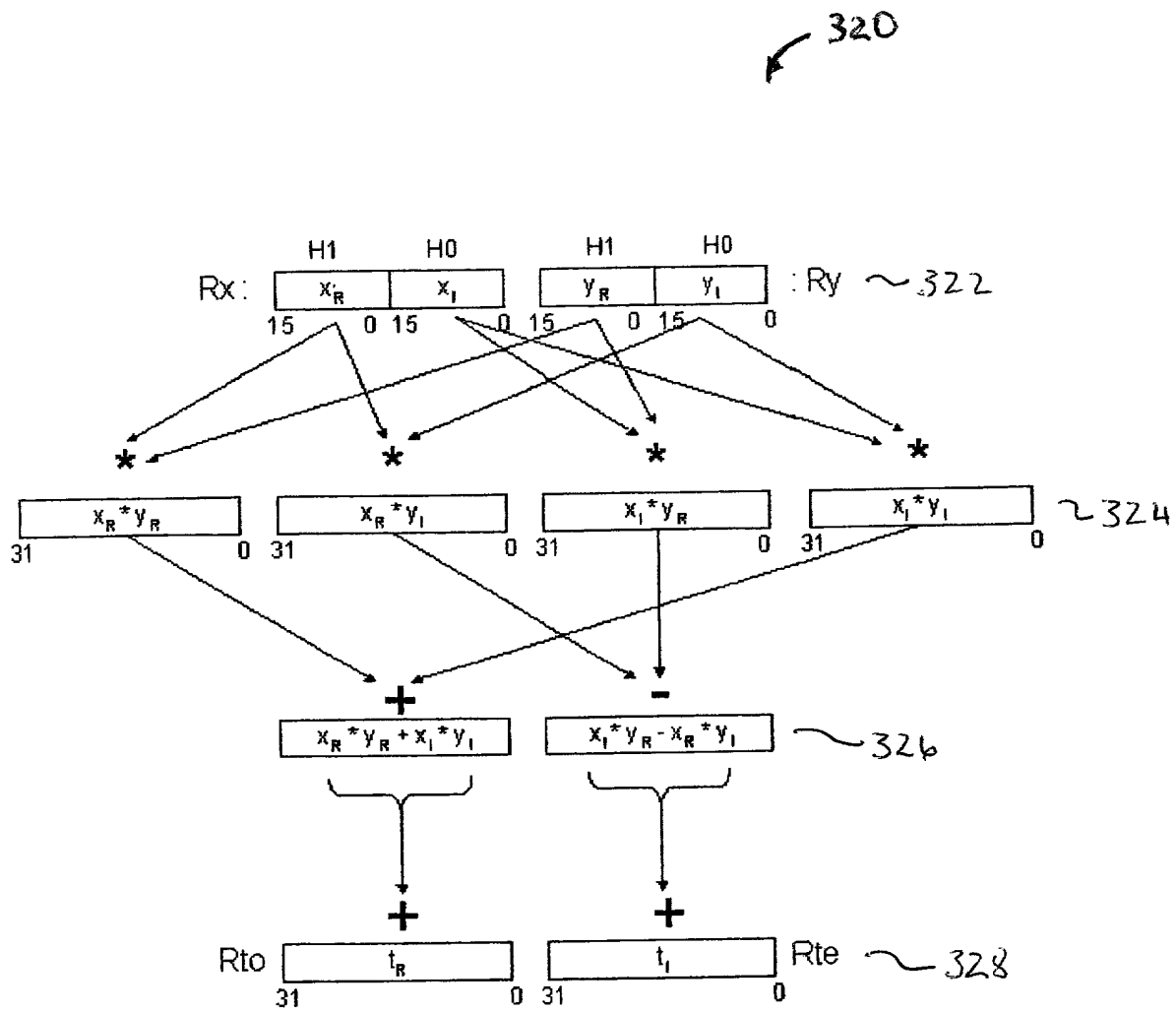


Fig. 3C

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Fig. 4A

Encoding																															
31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Group		S/P		Unit		MAU				Opcode				Rte		0		Rx				Ry				CE3		ME			

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Instruction	Operands	Operation	ACF
Dual Halfwords			
MPYCXLA.[SP]M.2SH	Rte, Rx, Ry	Do operation below but do not affect ACFs	None
MPYCXLA.[NVZ].[SP]M.2SH	Rte, Rx, Ry	$Rto \leftarrow Rto + (Rx.H1 * Ry.H1 - Rx.H0 * Ry.H0)$ $Rte \leftarrow Rte + (Rx.H1 * Ry.H0 + Rx.H0 * Ry.H1)$	F1 F0
[TF].MPYCXLA.[SP]M.2SH	Rte, Rx, Ry	Do operation only if T/F condition is satisfied in ACFs	None

C Not affected

V = 1 if an integer overflow occurs on either result, 0 otherwise

Z = 1 if a zero result is generated, 0 otherwise

Fig. 4B

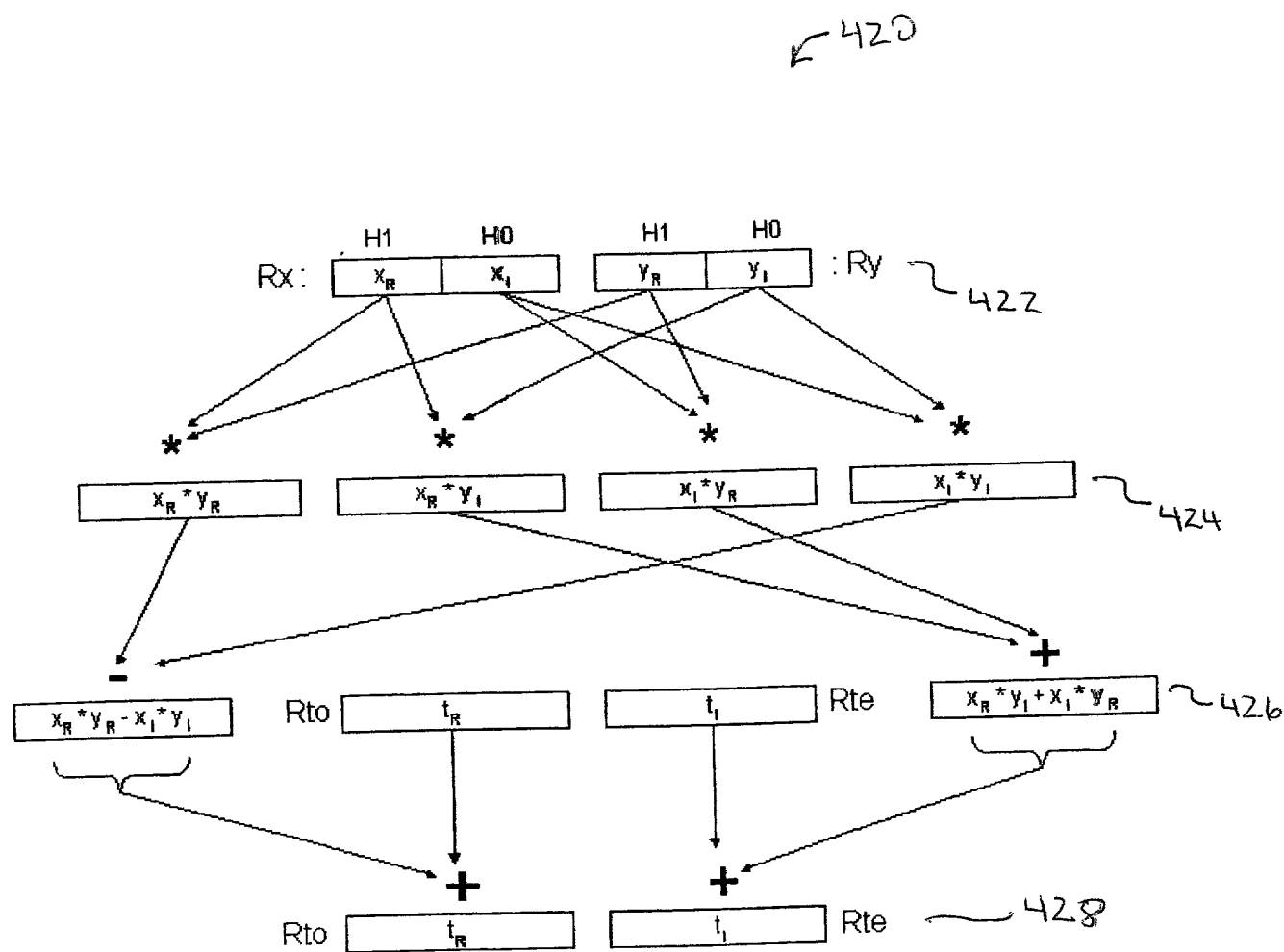


Fig. 4C

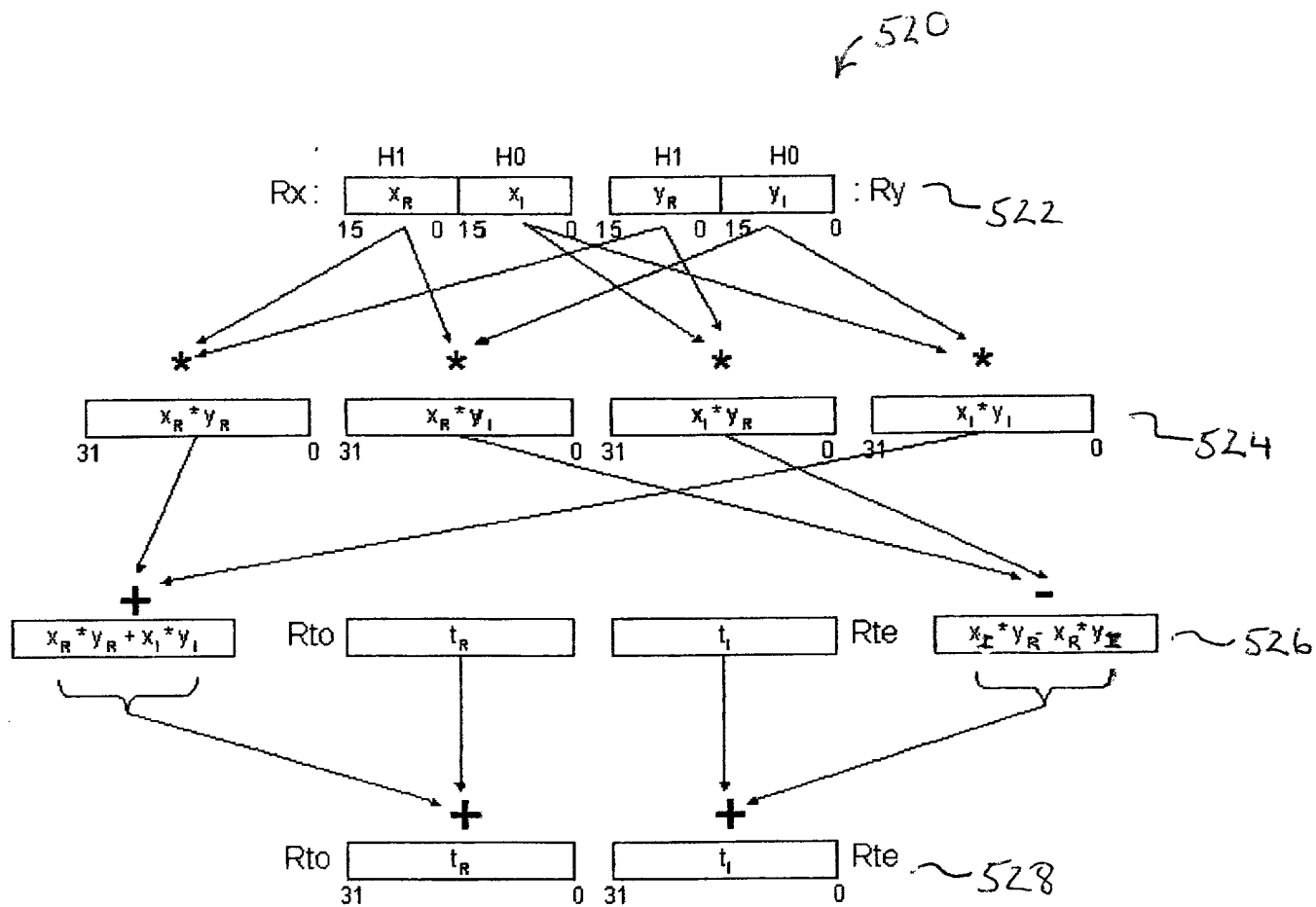


Fig. 5C

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31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Group		S/P		Unit		MAUopcode				Rte			0			Rx			Ry			CE3		ME							

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1-604

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4-612

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FIG. 6A

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Instruction	Operands	Operation	ACF
MPYCXLXA.[SP]M.2SH	Rte, Rx, Ry	Do operation below but do not affect ACFs	None
MPYCXLXA.[NVZ].[SP]M.2SH	Rte, Rx, Ry	$XPR.Be Rte \leftarrow XPR.Be Rte + (Rx.H1 * Ry.H1 - Rx.H0 * Ry.H0)$ $XPR.Be Rte \leftarrow XPR.Be Rte + (Rx.H1 * Ry.H0 + Rx.H0 * Ry.H1)$	F1 F0
[TF].MPYCXLXA.[SP]M.2SH	Rte, Rx, Ry	Do operation only if T/F condition is satisfied in ACFs	None

C - Not affected

V = 1 if an integer overflow occurs on either result, 0 otherwise

Fig. 6B

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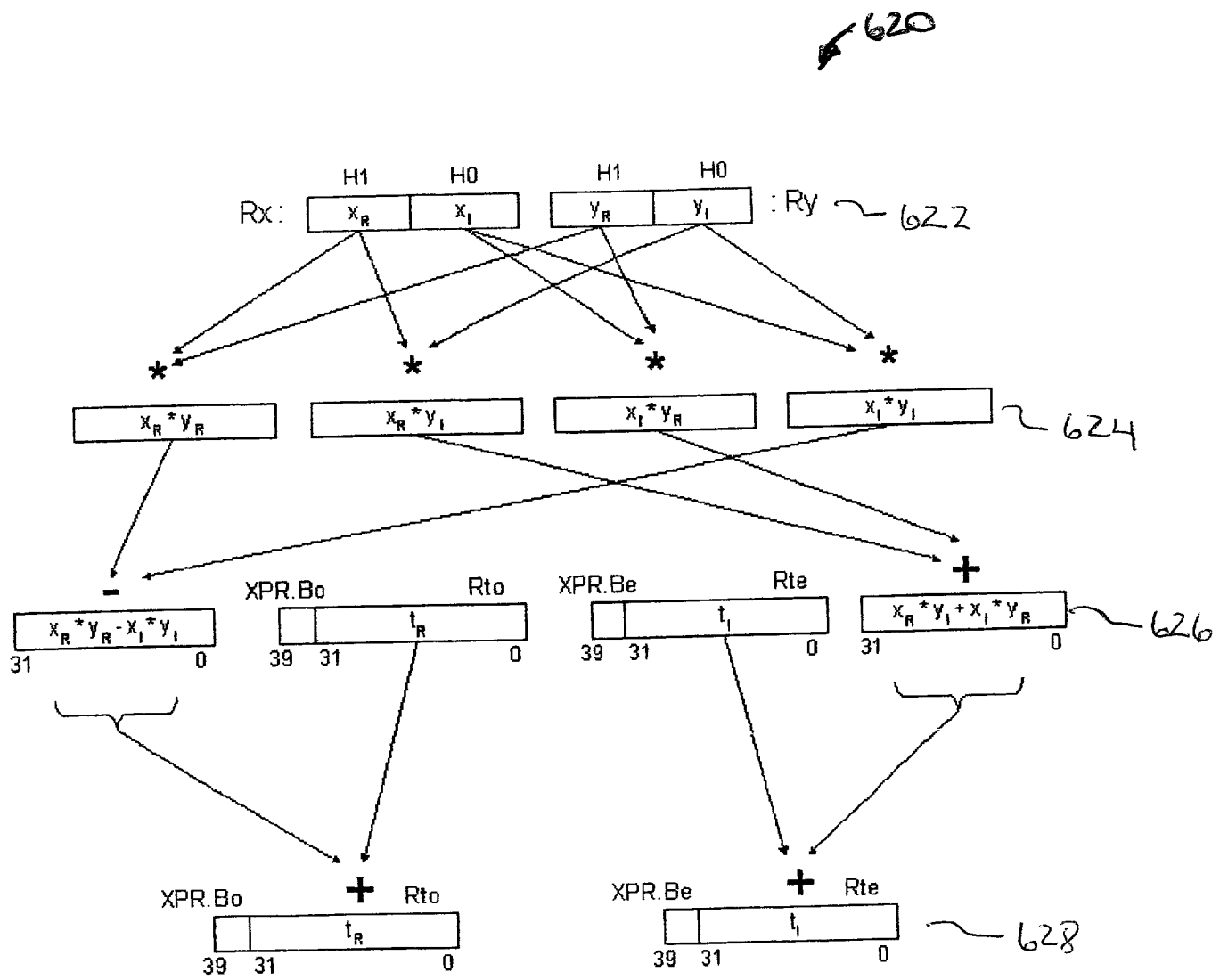


Fig. 6C

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File 7A

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Fig. 7B

720

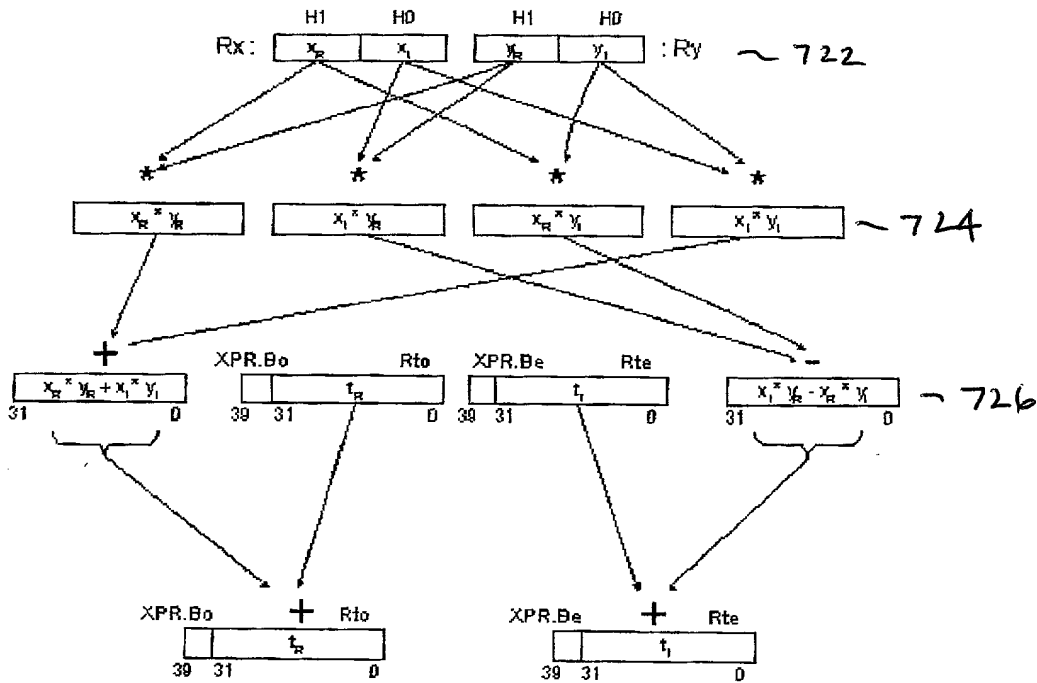
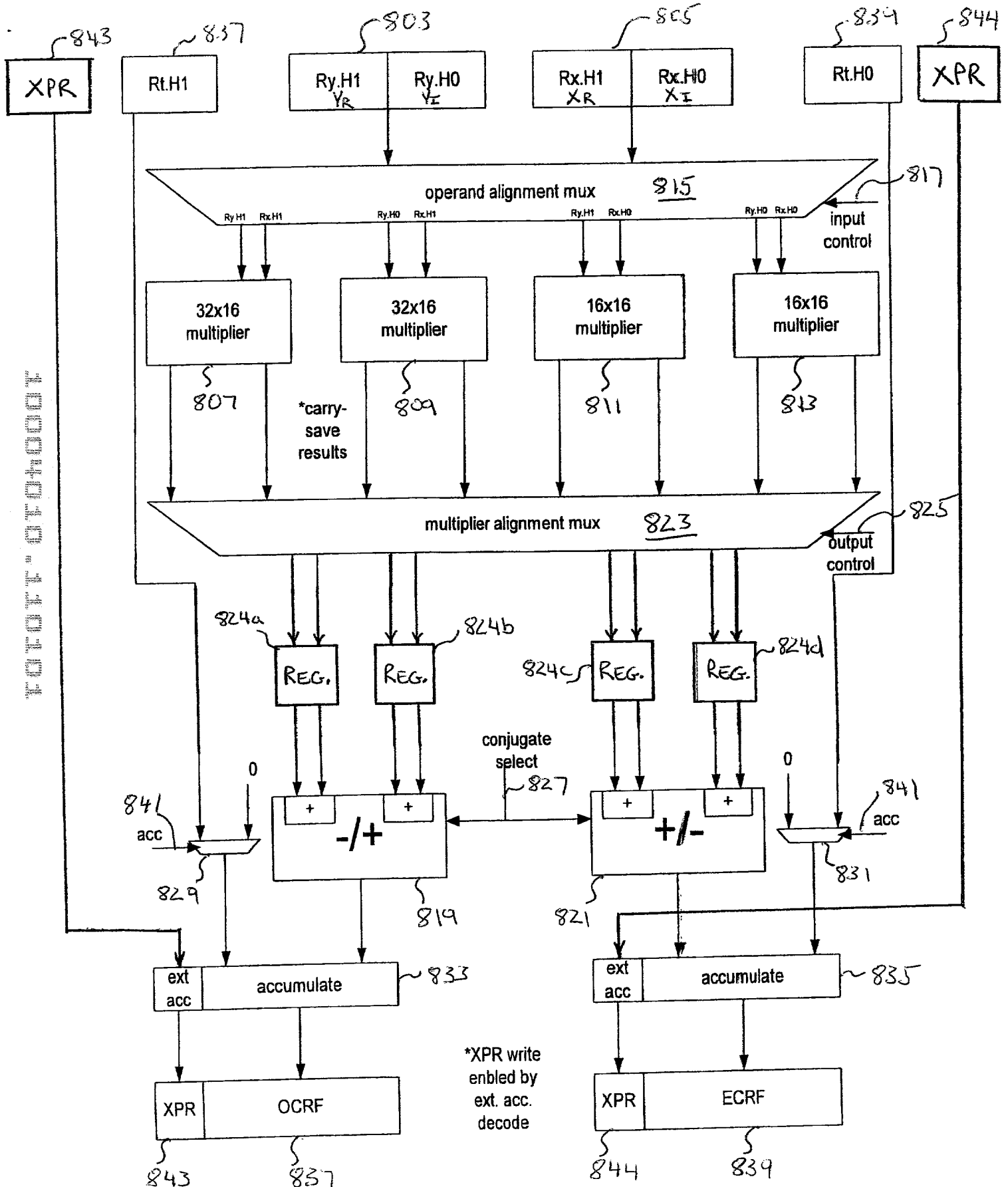


FIG. 7C

Fig. 8

800



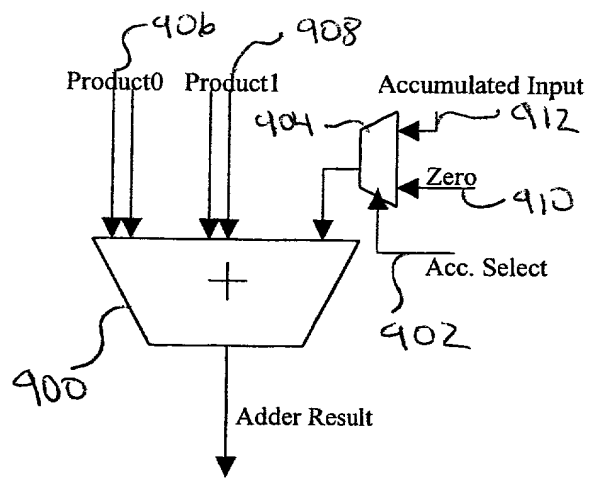
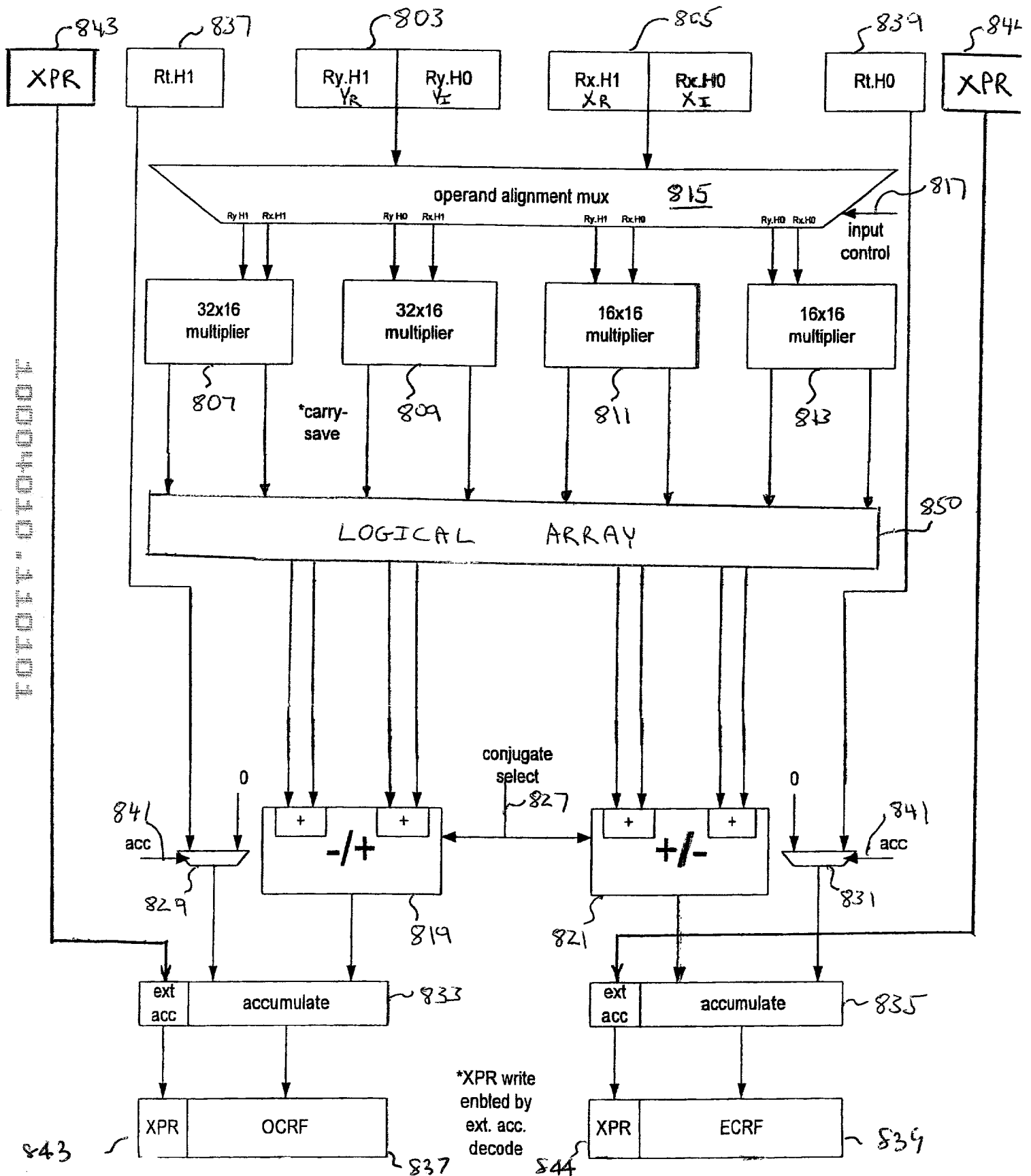


Fig. 9

Fig. 10

800'



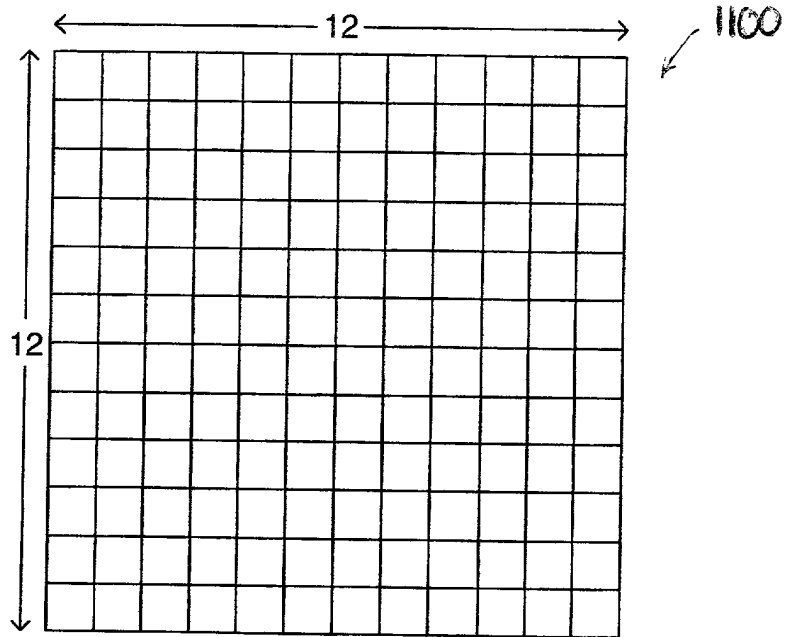


Fig. 11A

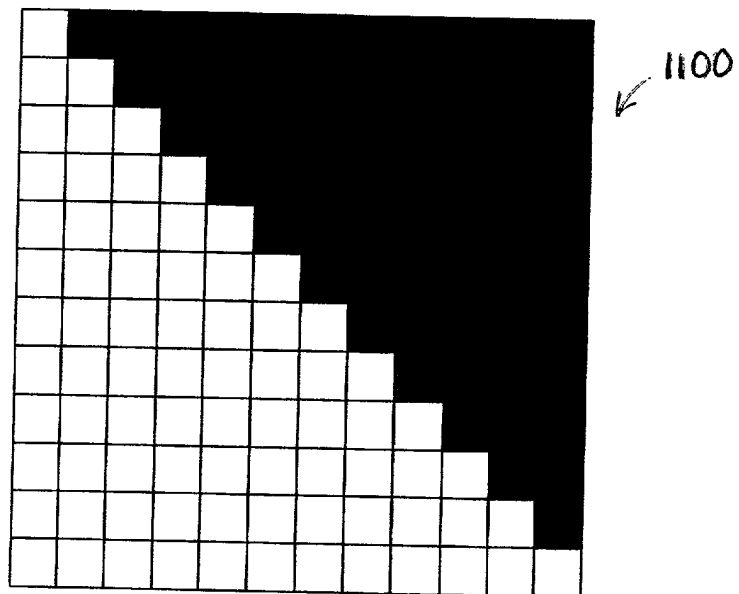


Fig. 11B

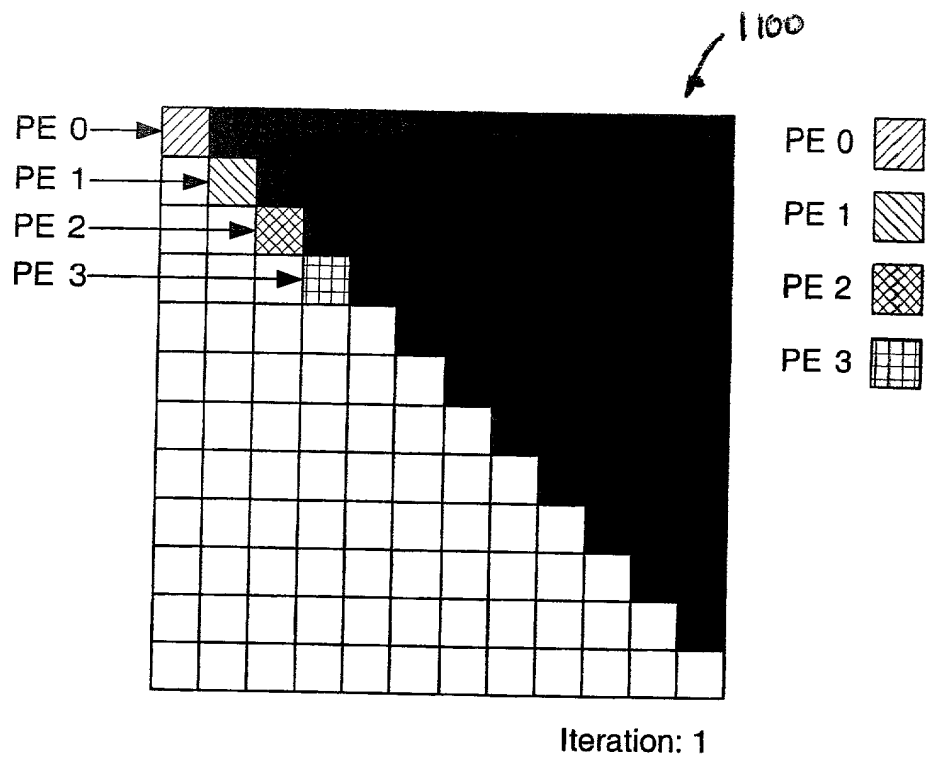


Fig. 11C

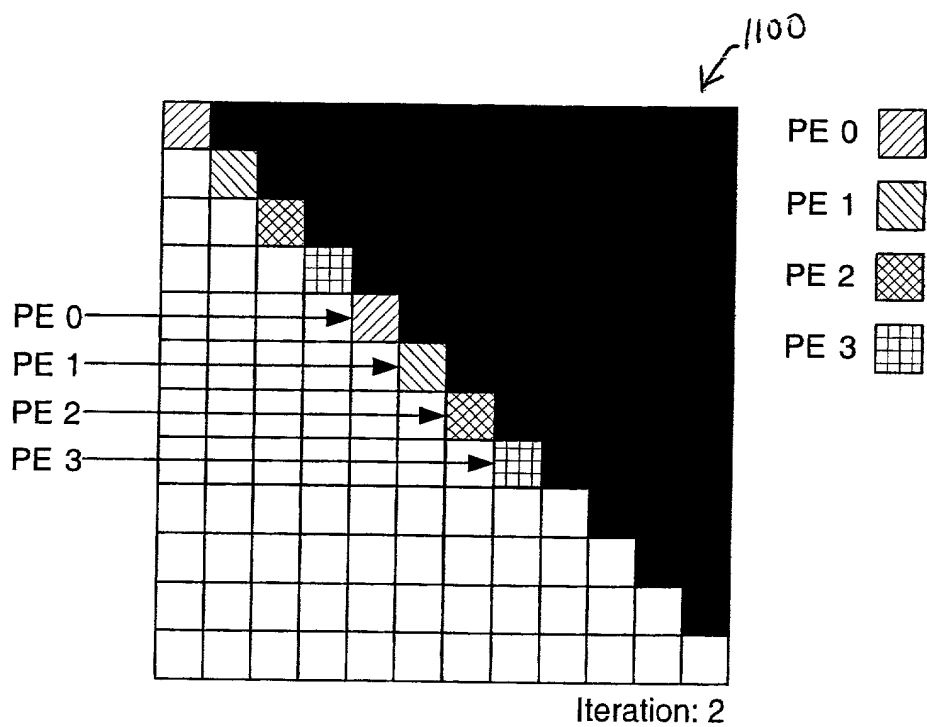


Fig. 11D

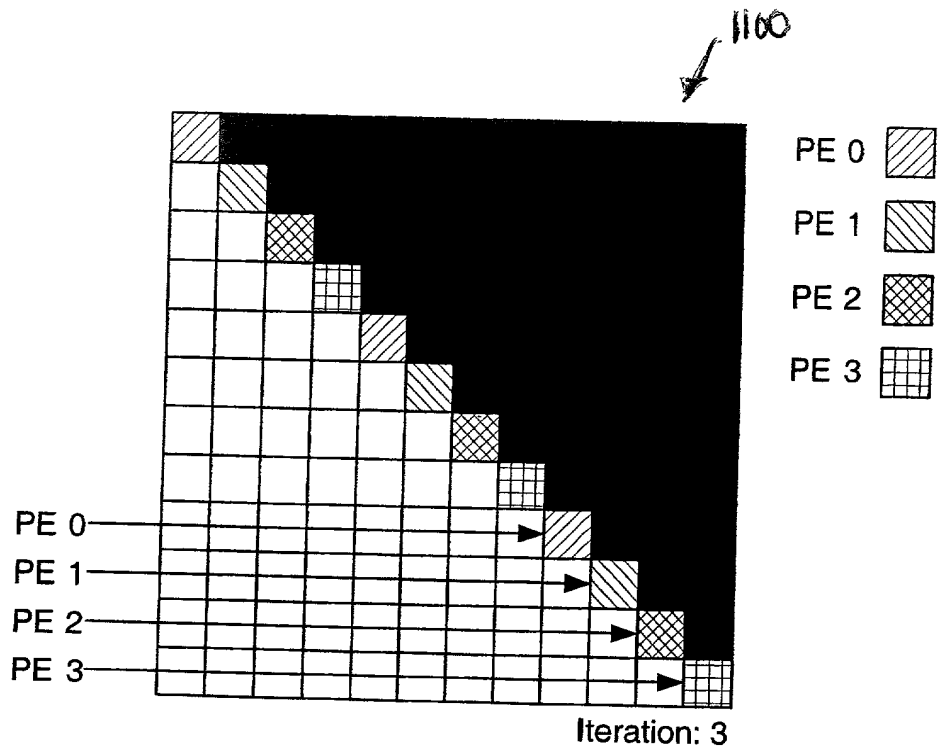


Fig. 11E

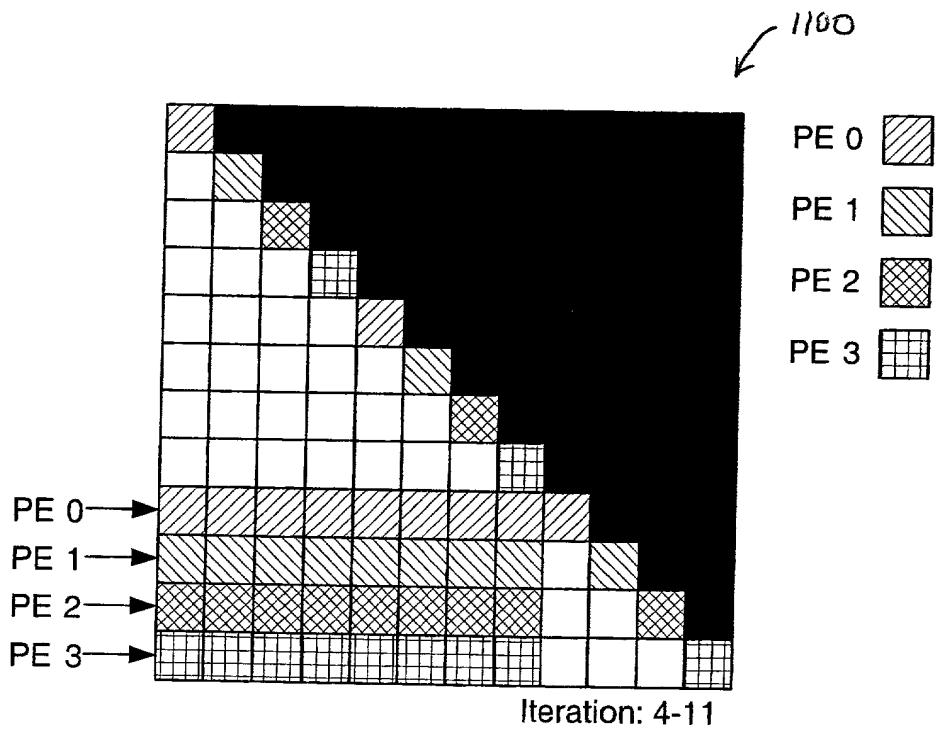


Fig. 11F

FIG. 11G

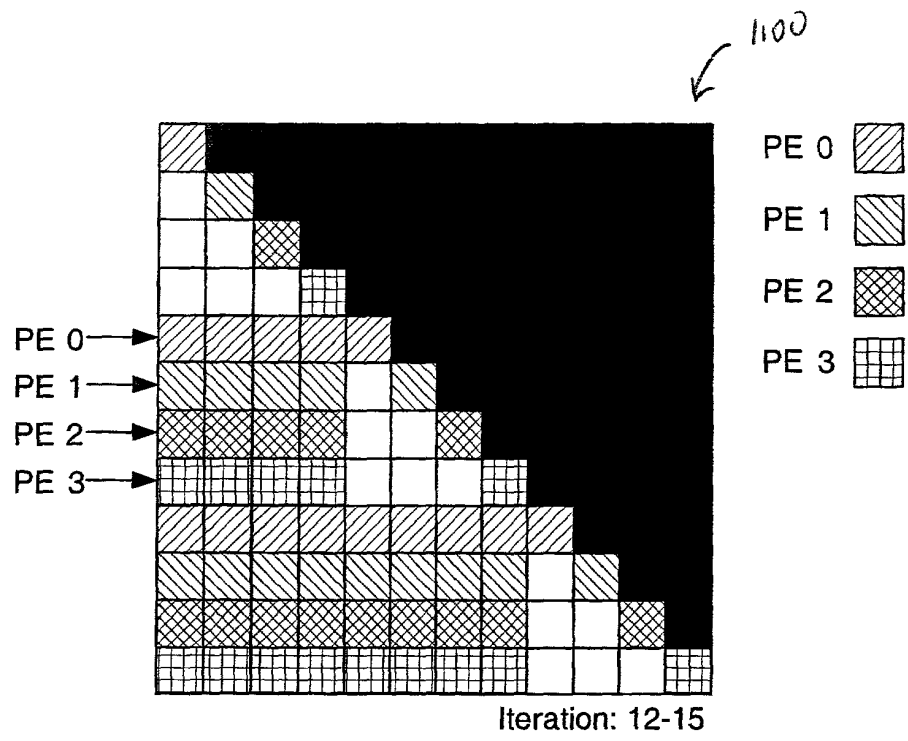


Fig. 11G

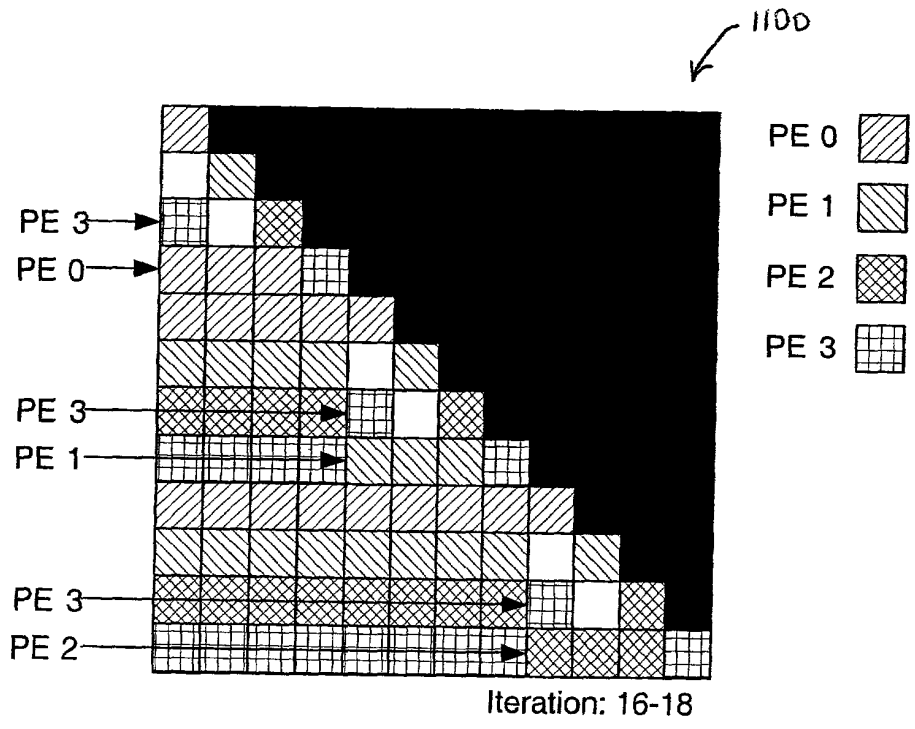


Fig. 11H

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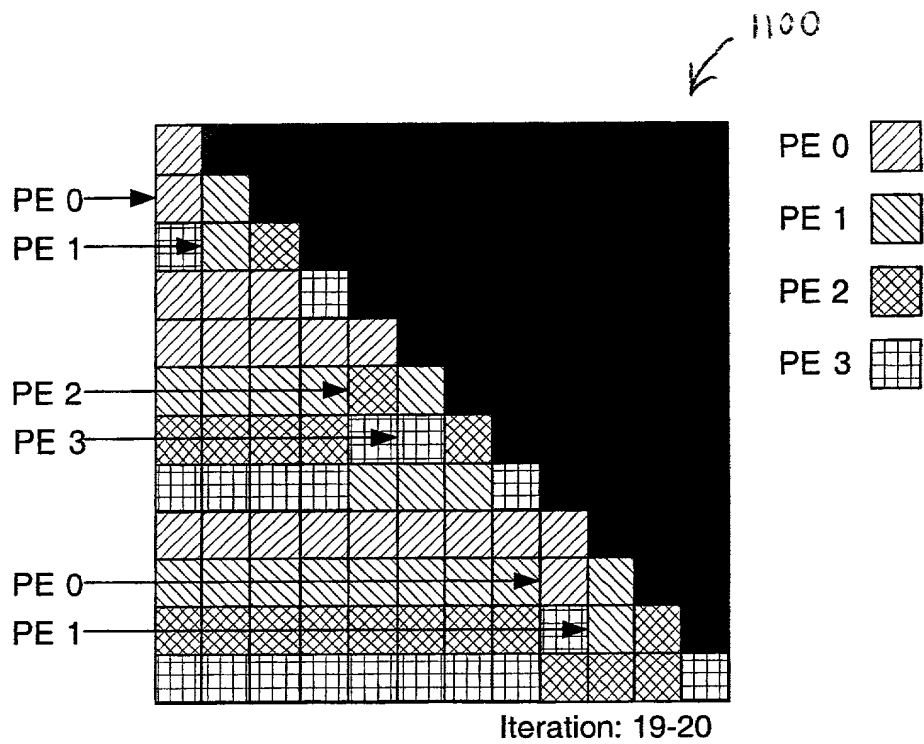


Fig. 11I